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Commissioner of Patents
US Patent and Trademark Office
PO Box 1450
Alexandria VA 22313-1450

Re: Patent Application - 10/636011
Serial No.: 636011 Series Code: 10
Publish date: June 2, 2005
Title – Manufacturing monitoring system and methods for determining efficiency.

The above referenced patent application came to my attention while researching patent information in preparation for submission of a patent for an invention closely related to the applicants submission.

I will detail here disputes I have to the Claims and Description sections of the subject patent application. I have printed material from various websites representing companies pursuing commercial endeavors covered by the applicant's claims. These commercial endeavors have been ongoing for more than 10 years and in some cases close to 20. A 10 minute Google search using "Downtime Tracking" and "Plant Efficiency" reveals a staggering array of commercial enterprises which are engaged in offering both software and hardware which clearly conflict with the applicant claims of a new invention.

General objections to the Description and Claims:

- The applicants make claims of invention that are so broad and sweeping as to cover most of the currently available technology in the field of SCADA/HMI..
- The applicants make claims of "invention" that cannot be substantiated, and make assertions as part of background that have no basis in fact.

Claims

[Claim 1]

A manufacturing monitoring system used to determine the efficiency of a production plant, an assembly or a process line or the components of that assembly or a process line, comprising: means for gathering data relating to the efficiency of the production plant, the assembly line or the components of the assembly line, said data being selected from the group consisting of unit output values, downtime occurrences, downtime duration, downtime incident codes, downtime categorization, action items, minutes ran, hours scheduled, capable rate, actual output, idle time, total time, waste analysis values, or combinations thereof; means for storing the gathered data; means for calculating production efficiency based on the gathered data to provide calculated data; means for communicating the gathered data and the calculated data within said system; and means for displaying the calculated data.

Objection: Applicants make this claim as if no system were currently in existence using any technology to track efficiency and gather data from production and assembly lines regarding “unit output values, downtime occurrences, downtime duration, downtime incident codes, downtime categorization,...” I have included numerous documents freely available from the public domain directly contradicting this claim. As an example, I am enclosing a published report from Food Engineering Magazine dated October 1, 2002 which describes my companies’ system using forms and charts to track “Throughput and common downtime causes” with an associated reporting system described as “...software algorithms to sort and consolidate the data into meaningful reports” and goes on to say, “...measure production throughput and common causes of downtime”. This is only a small example from the information I have enclosed clearly showing the applicants broad and general claim to an “invention” for a *“system used to determine the efficiency of a production plant”*, previously existed in the public domain.

[Claim 2]

The manufacturing monitoring system in accordance with claim 1 further comprising: means for displaying the gathered data.

Objection: The applicant claim is clearly contradicted by the enclosed publicly available information for a multitude of systems that “display” data related to “unit output values, downtime occurrences, downtime duration, downtime incident codes....” Ect.

[Claim 3]

The manufacturing monitoring system in accordance with claim 1 further comprising: means for storing the calculated data.

Objection: Again as with the first two claims, system are widely available for storing and retrieving information related to: “unit output values, downtime occurrences, downtime duration, downtime incident codes....” Would the applicant’s claim then preclude a plant manager from using an Excel spreadsheet to “Store the calculated data” regarding the efficiency of his production lines.

[Claim 4]

The manufacturing monitoring system in accordance with claim 1 wherein said means for gathering data is circuitry that monitors the condition and operation of an assembly or a process line component or subcomponent

Objection: There are many, many widely available commercial products for “gathering and monitoring “the condition and operation of an assembly or a process line component or subcomponent”, with respect to the applicant’s claims. I have included printed copies of commercially available devices intended precisely for this purpose. These devices are referred to as RTUs in the parlance of SCADA/HMI.

[Claim 5]

The manufacturing monitoring system in accordance with claim 4 wherein said circuitry used to monitor the condition and operation of an assembly or a process line component or subcomponent is a programmable logic controller. [emphasis added]

Objection: This claim is in and of itself breathtaking in its implications. The number of companies involved in monitoring PLC's of their own and others manufacture is staggering and includes the largest names in the automation business: Rockwell Automation, Combustion Engineering, Wonder Ware™, Alan Bradley, Foxboro... the list goes on and on. These companies have been in the business of making systems and components for years that accomplish exactly what is claimed here as a new invention.

[Claim 6]

The manufacturing monitoring system in accordance with claim 1 wherein said means for gathering data is an input device capable of sending or receiving data selected from the group consisting of an electronic terminal, a personal computer, a computer, a data processor, a handheld data device, or combinations thereof.

Objection: In addition to others I refer the examiner to my own company website at www.gosims.com (screen shot enclosed) which clearly describes the use of a Palm m100 handheld data device to collect the very data with the exact methods espoused in the applicants claims and is the latest iteration of the system described in the Food Engineering article included here and referred to in the objection to claim 1.

[Claim 7]

The manufacturing monitoring system in accordance with claim 6 wherein said means for gathering data is an input device for sending or receiving data and which allows the operator to batch enter the data.

Objection: One assumes "Batch entry" means entering a series of records at one time, I'm not sure what relevance this has to a system that takes input from PLCs, unless it is to preclude systems that use manual data entry of throughput, downtime and related information such as disclosed in the Food Engineering article.

[Claim 8]

The manufacturing monitoring system in accordance with claim 1 wherein said means for calculating production efficiency is a data processor.

Objection: The Food Engineering Magazine enclosed and dated October 1, 2002 describes a system using "...software algorithms to sort and consolidate the data into meaningful reports" clearly predating the applicants claims with information in the public domain. Every commercial application I have submitted information on uses such a system.

[Claim 9]

The manufacturing monitoring system in accordance with claim 1 wherein said means for storing the gathered data is a database.

Objection: Throughout the enclosed information various companies refer to "Databases" for the storage of the exact data claimed in the application. Such a database is even available online for free (for the first 5 machines) at www.downtimedb.com. (enclosed)

[Claim 10]

The manufacturing monitoring system in accordance with claim 1 wherein said means to communicate the information includes the Internet or an intranet.

Objection: Once again, the claimed database is available online for free (for the first 5 machines) at www.downtimedb.com.

[Claim 11]

The manufacturing monitoring system in accordance with claim 1 wherein said means to display the information includes a terminal, computer, handheld device, monitor or other humanly perceptible display.

Objection: Numerous examples are enclosed which use software to display the exact data specified in claim 1.

[Claim 12]

The manufacturing monitoring system in accordance with claim 1 wherein said calculated data provides an efficiency report.

Objection: From Rockwell Automation website:

PlantMetrics helps you...

- Increase output by accurately measuring the efficiency of your plant equipment (OEE)

Accompanying this pitch is a screen shot of a report titled "Plant Efficiency Summary" (enclosed)

This is available with Rockwell's RSBizware PlantMetrics SCADA software. I have enclosed a print of Rockwell's webpages.

[Claim 13]

A manufacturing monitoring system used to determine the efficiency of a production plant, an assembly or a process line or the components of that assembly or a process line, comprising: data circuitry to gather data relating to the efficiency of the production plant, the assembly line or the components of the assembly line, said gathered data being selected from the group consisting of unit output values, downtime occurrences, downtime duration, downtime incident codes, downtime categorization, action items, minutes ran, hours scheduled, capable rate, actual output, idle time, total time, waste analysis values, or combinations thereof; a data processor for receiving the gathered data and for performing calculations with at least some of the gathered data to provide calculated data; and a display in communication with the data processor to display the calculated data

Objection: A redundant reiteration of claim 1. Each of the following claims is a reiteration of previous claims all apparently related to the reiteration of claim 13

[Claim 14]

[Claim 15]

[Claim 16]

[Claim 17]

[Claim 18]

[Claim 19]

[Claim 20]

[Claim 21]

[Claim 22]

A manufacturing monitoring system used to determine the efficiency of a production plant, an assembly or a process line or the components of that assembly or a process line comprising: an input layer to gather data relating to the efficiency of the production plant, the assembly line or the components of the assembly line, said data being selected from the group consisting of unit output values, downtime occurrences, downtime duration, downtime incident codes, downtime categorization, action items, minutes ran, hours scheduled, capable rate, actual output, idle time, total time, waste analysis values, or combinations thereof; a data processing layer to calculate the production efficiency based on the said data gathered by the input layer; a storage layer for storing the data gathered by the input layer and for storing the data calculated by the data processing layer; a communication layer to communicate the data stored at the storage layer within the manufacturing monitoring system; and a presentation layer to display the data stored at the storage layer.

Objection: Claim 22 introduces a concept the applicant refers to as “layers” for the acquisition of data which in light of documentation already presented is a contrivance covering data already shown to be gathered in identical or nearly identical methods by previously available commercial systems.

[Claim 23]

A manufacturing monitoring method for determining the efficiency of a production plant, an assembly or a process line or the components of that assembly or a process line; said method comprising the steps of: gathering data related to the efficiency of the production plant, the assembly line or the components of the assembly line; selecting said gathered data from the group consisting of

unit output values, downtime occurrences, downtime duration, downtime incident codes, downtime categorization, action items, minutes ran, hours scheduled, capable rate, actual output, idle time, total time, waste analysis values, or combinations thereof; calculating a production efficiency based on the gathered data with a data processor; storing the gathered data and the calculated data in a memory; communicating the gathered data and the calculated data to other computers, terminals, servers, or databases; and displaying the calculated data on a display.

Objection: This claim constructs a method for the system of layered data gathering referred to in claim 22. This claim is clearly a method built to support the contrivance of claim 22, which has been shown to be a duplication of the many commercially available systems.

The following claims all appear related to the calculation and storage of data related to claims 22 and 23.

[Claim 24]

[Claim 25]

[Claim 26]

[Claim 27]

[Claim 28]

[Claim 29]

[Claim 30]

[Claim 31]

[Claim 32]

[Claim 33]

Background

[0005] In certain manufacturing monitoring systems, only the efficiency of the entire plant is calculated rather than individual product lines. These systems also record downtimes due to maintenance or equipment failures and reductions in plant efficiency. However, these systems cannot point out specific sources of inefficiency. By monitoring the efficiencies of different components of a product line, a component that decreases the efficiency of the product line can be identified, replaced, or modified to improve its efficiency and that of the production line.

[0006] Moreover, these systems and methods used to track efficiency are inaccurate due to user error. Often, data from many sources would have to be gathered by a product line operator and then transcribed into a central database at a later time by someone else. Whereas, a system that allowed for different operators to enter data while monitoring different areas of the product line would usually correct or avoid these problems. Operators would then be in a position to detect and correct mistakes made after they entered the values relating to efficiency.

[0009] Thus, traditional models of monitoring a production line or the overall efficiency of a plant are incapable of providing the real-time efficiency analysis needed to improve the efficiency of individual production lines. Consequently, there is a need for a system that